

# Case Study Precise Positioning



Ensuring accurate positioning is a challenge for micro-mobility. With precise positioning technology delivering an accuracy of up to 10cm, ZEUS ensures that our riders park and access their scooters smoothly and safely."

David O'Reilly, CCO ZEUS Scooters



## Safe and Stable e-Scooter Rides with GNSS Technology

**ZEUS Scooters** is an Irish-owned and operated electric scooter sharing provider, striving to reduce congestion on city streets and provide sensible urban commuting for riders. They are the world's first company providing motorists with 3-wheeled electric scooters.

ZEUS is focusing on medium sized and small cities, which gives them control of up to 22% of the total e-scooter market per country.



### The Challenge

E-bikes and e-scooters are becoming a common sight in many cities. Safe, collision-free rides are important for city dwellers. For municipal transport providers or private shared mobility companies, these vehicles help improve traffic in congested cities and are a growing source of income. Operators need to protect their users as well their e-scooters from theft, vandalism, and misuse by monitoring the location of their moving assets to improve operational liability and costs.

### The Solution

ZEUS mounted the PGM Evaluation Kit onto their e-scooters and used Skylark, the wide-area, cloud-based GNSS correction service to determine the scooter's location. This high-precision GNSS data—together with the inertial sensor built-in to each vehicle's device—allows ZEUS to detect drunk driving, erratic motorist behavior and check that the motorist is sticking to the correct, defined lane restricted for their ride. In the case of misuse, the e-scooter can be remotely slowed down or brought to a smooth halt. This has the advantage of protecting both the rider and hindering vehicle damage.

### The Result and Next Steps

The accuracy levels gained with the use of PGM and Skylark were very promising at up to 10cm, enabling close driver monitoring, ensuring that the vehicle is parked correctly, and allowing ZEUS to reward good motorist behavior. ZEUS continues to test and evaluate Precise Positioning for productive use in their e-Scooters.



Figure 1: PGM Receiver, 50.95 x 30 mm Mini PCIe



Figure 2: PGM Evaluation Hardware 115 x 82 x 34 mm

